

CLAIMS

What is claimed is:

1 1. A surgical system, comprising:
2 an outer sleeve which has an aspiration port that
3 is in fluid communication with an inner channel of said
4 outer sleeve;
5 an inner sleeve that is located within said inner
6 channel of said outer sleeve;
7 a motor that moves said inner sleeve within said
8 inner channel, said motor can operate at a maximum
9 speed and a reduced speed; and,
10 a foot pedal that is coupled to said motor and
11 moves between an upward position where said motor
12 operates at the maximum speed and a depressed position
13 where said motor operates at the reduced speed.

1 2. The system as recited in claim 1, further
2 comprising a vacuum line that is coupled to said inner
3 sleeve, a variable regulator valve that is coupled to
4 said vacuum line and said foot pedal, and a controller
5 that is coupled to said variable regulator valve and
6 said foot pedal, said foot pedal having a switch that
7 can be actuated to place said controller in a variable
8 speed mode so that said motor speed can be controlled
9 through said foot pedal or a variable pressure mode so

10 that a pressure of said vacuum line is controlled
11 through said foot pedal.

1 3. The system as recited in claim 1, further
2 comprising a controller that is coupled to said motor
3 and said foot pedal and which controls a distal
4 movement of said inner sleeve.

1 4. The system as recited in claim 2, further
2 comprising an exhaust valve that couples said vacuum
3 line to an atmosphere when said motor speed reaches a
4 predetermined speed.

1 5. The system as recited in claim 1, further
2 comprising a controller and a driver circuit which
3 provide a series of digital pulses to said motor.

1 6. The system as recited in claim 1, further
2 comprising a slider that has a groove and a key
3 surface, a wobble plate that is coupled to said motor
4 and extends into said groove, and a controller which
5 controls said motor so that said wobble plate is
6 aligned within said groove when said motor is in a
7 start condition.

1 7. The system as recited in claim 1, further
2 comprising a cable that couples said motor to said
3 inner sleeve.

1 8. A surgical system, comprising:
2 a surgical cutter;
3 a vacuum source that provides a vacuum pressure to
4 said surgical cutter;
5 a variable regulator valve that controls the
6 vacuum pressure;
7 a controller that provides an output signal to
8 said variable regulator valve; and,
9 an input device that provides an input signal to
10 said controller.

1 9. The system as recited in claim 8, further
2 comprising a pressure transducer that provides a
3 feedback signal to said controller.

1 10. The system as recited in claim 8, further
2 comprising an exhaust valve that couples said vacuum
3 source to an atmosphere.

1 11. The system as recited in claim 8, wherein said
2 input device is a foot pedal.

1 12. A surgical device, comprising:
2 a handpiece;
3 a motor that is attached to said handpiece;
4 a wobble plate that is connected to said motor;
5 a slider that is coupled to said wobble plate,
6 said slider having a key surface;

7 an outer sleeve that is coupled to said handpiece;
8 an inner sleeve that is attached to said slider
9 and can move relative to said outer sleeve.

1 13. The system as recited in claim 12, further
2 comprising a controller that aligns said wobble plate
3 with said groove of said slider when said motor is in a
4 start condition.

1 14. A surgical system, comprising:
2 an outer sleeve that has an aspiration port which
3 is in fluid communication with an inner channel of said
4 outer sleeve;
5 an inner sleeve that is located within said inner
6 channel;
7 a motor that moves said inner sleeve within said
8 inner channel; and,
9 a cable that couples said motor to said inner
10 sleeve.

1 15. A surgical system, comprising:
2 an outer sleeve that has an aspiration port which
3 is in fluid communication with an inner channel of said
4 outer sleeve;
5 an inner sleeve that is located within said inner
6 channel;

7 a motor that moves said inner sleeve relative to
8 said outer sleeve, said motor operates at a motor
9 speed;

10 a vacuum system that provides a vacuum pressure at
11 said aspiration port;

12 a valve that controls the vacuum pressure;

13 a controller that controls said motor and said
14 valve, said controller being operative in either a
15 variable speed mode which controls said motor speed or
16 a variable pressure mode which controls the vacuum
17 pressure; and,

18 an input device that is coupled to said
19 controller, said foot pedal having a switch that can
20 switch said controller between said variable speed mode
21 and said variable pressure mode.

1 16. The system as recited in claim 15, further
2 comprising an exhaust valve that is coupled to said
3 vacuum system and said controller.

1 17. The system as recited in claim 15, wherein
2 said valve is a variable regulator valve.

1 18. The system as recited in claim 15, wherein
2 said input device is a foot pedal.

1 19. A surgical device, comprising:

2 an outer sleeve that has an aspiration port which
3 is in fluid communication with an inner channel of said
4 outer sleeve; and,

5 an inner sleeve that is located within said inner
6 channel, said inner sleeve having a tip that exerts a
7 spring force on said outer sleeve.

1 20. The device as recited in claim 19, wherein
2 said inner sleeve has a pair of slits.

1 21. A motor comprising:
2 a rotor;
3 a coil that is coupled to said rotor;
4 a stop magnet that is coupled to said rotor to
5 stop said rotor in a stop position.

1 22. The motor as recited in claim 21, further
2 comprising an inner sleeve that is coupled to said
3 rotor.

1 23. A surgical device, comprising:
2 a handpiece;
3 an outer sleeve that is coupled to said handpiece;
4 an inner sleeve that can move relative to said
5 outer sleeve;
6 a solenoid that is attached to said handpiece;
7 and,
8 a spring that couples said solenoid to said inner
9 sleeve.

1 24. The device as recited in claim 23, wherein
2 said handpiece includes a stop that limits the movement
3 of said spring and said inner sleeve.

1 25. A surgical device, comprising:
2 a handpiece;
3 a motor located within said handpiece, said motor
4 having an output shaft;
5 an electrically insulative wobble plate that is
6 attached to said output shaft;
7 an electrically insulative slider that is coupled
8 to said wobble plate;
9 an outer sleeve that is coupled to said handpiece;
10 and,
11 an inner sleeve that is coupled to said slider and
12 which moves relative to said outer sleeve.

1 26. The device as recited in claim 25, further
2 comprising an electrically insulative cap that is
3 attached to said handpiece and which encloses said
4 slider and said wobble plate.